

CLAIMS

What is claimed is:

1. An electrical connector for receiving a circuit card having a card edge including a plurality of electrical contacts, the electrical connector comprising:

a body having portions for connecting the electrical connector to external circuit elements, a slot formed in the body for receiving the card edge, wherein the slot has a size which substantially corresponds to the card edge, and a plurality of pins associated with the slot and extending through the body, wherein the pins are positioned for engagement with the electrical contacts of the circuit card; and

a release mechanism enclosing portions of the body of the electrical connector and the pins associated with the slot, for urging the pins into the slot when the release mechanism assumes a first operating position, and for drawing the pins out of the slot when the release mechanism assumes a second operating position.

2. The electrical connector of claim 1 wherein the release mechanism comprises:

a cover extending longitudinally along the body, and extending along the slot, wherein the cover is movable between the first operating position and the second operating position; and

a pin holder coupled with the cover and with the body, for transverse movement relative to the slot, wherein the plurality of pins are attached to the pin holder.

3. The electrical connector of claim 2 wherein the release mechanism includes a pair of pin holders

positioned on opposite sides of the slot, wherein the plurality of pins are attached to the pair of pin holders, and wherein each of the pin holders is coupled with the cover.

4. The electrical connector of claim 2 wherein the pin holder includes a web having face portions for receiving the plurality of pins.

5. The electrical connector of claim 4 wherein the web has base portions for engaging a cavity formed in the body.

6. The electrical connector of claim 4 wherein the cover includes a cavity for receiving upper portions of the web.

7. The electrical connector of claim 6 wherein the pins have electrical contacts associated with the upper portions the web, and wherein the electrical contacts are positioned adjacent to the slot.

8. The electrical connector of claim 6 wherein the cover includes a plurality of projections extending into the cavity of the cover, and wherein the upper portions of the pin holder include a plurality of projections on a first side facing the face portions of the pin holder and a plurality of recesses on a second side opposite to the first side.

9. The electrical connector of claim 8 wherein first projections extending into the cavity of the cover and the projections of the upper portions of the pin holder form cooperating camming and follower surfaces.

10. The electrical connector of claim 9 wherein the cooperating camming and follower surfaces include inclined surfaces for cooperating with opposing, curved surfaces.

11. The electrical connector of claim 10 wherein the inclined surfaces include flat portions forming a surface for stable engagement with the opposing, curved surfaces.

12. The electrical connector of claim 9 wherein second projections extending into the cavity of the cover cooperate with the recesses of the upper portions of the pin holder.

13. The electrical connector of claim 8 wherein first projections extending into the cavity of the cover on the first side of the upper portions of the pin holder are aligned with the projections of the upper portions of the pin holder when the release mechanism is in the second operating position, and wherein the first projections of the cover are offset from the projections of the upper portions of the pin holder when the release mechanism is in the first operating position.

14. The electrical connector of claim 13 wherein second projections extending into the cavity of the cover on the second side of the upper portions of the pin holder are aligned with the recesses of the upper portions of the pin holder when the release mechanism is in the second operating position, and wherein the second projections of the cover are offset from the recesses of the upper portions of the pin holder when the release mechanism is in the first operating position.

15. The electrical connector of claim 2 wherein the cover includes a handle extending from the cover.

16. The electrical connector of claim 2 wherein the slot extends longitudinally between opposing ends of the body, wherein the electrical connector further includes an opening formed in an end of the body and an opening formed in an end of the cover, and wherein the opening in the body and the opening in cover have a size which substantially corresponds to the card edge, for slidably receiving the circuit card in the slot through the openings.

17. The electrical connector of claim 16 wherein the opening formed in the end of the body is in substantial alignment with the opening formed in the end of the cover.

18. The electrical connector of claim 16 wherein the release mechanism includes a handle extending from the cover, and wherein the handle is adjacent to the openings and spaced from the openings to allow the card edge to pass the handle.

19. An electrical connector for receiving a circuit card having a card edge including a plurality of electrical contacts, the electrical connector comprising:

a body having portions for connecting the electrical connector to external circuit elements, a slot formed in the body for receiving the card edge, wherein the slot has a size which substantially corresponds to the card edge, and a plurality of pins associated with the slot and extending through the body, wherein the pins are positioned for engagement with the electrical contacts of the circuit card;

a cover coupled with the body and extending longitudinally along the body and the slot, wherein the

cover is movable between a first operating position and a second operating position; and

a pin holder receiving the plurality of pins and coupled with the cover and with the body, for transverse movement relative to the body and the slot responsive to movement of the cover between the first operating position and the second operating position.

20. The electrical connector of claim 19 wherein the pin holder is moved toward the slot when the cover is in the first operating position, and wherein the pin holder is moved away from the slot when the cover is in the second operating position.

21. The electrical connector of claim 19 which includes a pair of pin holders positioned on opposite sides of the slot, wherein the plurality of pins are attached to the pair of pin holders, and wherein each of the pin holders is coupled with the cover.

22. The electrical connector of claim 19 wherein the pin holder includes a web having face portions for receiving the plurality of pins.

23. The electrical connector of claim 22 wherein the web has base portions for engaging a cavity formed in the body.

24. The electrical connector of claim 22 wherein the cover includes a cavity for receiving upper portions of the web.

25. The electrical connector of claim 24 wherein the pins have electrical contacts associated with the upper portions the web, and wherein the electrical contacts are

positioned adjacent to the slot.

26. The electrical connector of claim 24 wherein the cover includes a plurality of projections extending into the cavity of the cover, and wherein the upper portions of the pin holder include a plurality of projections on a first side facing the face portions of the pin holder and a plurality of recesses on a second side opposite to the first side.

27. The electrical connector of claim 26 wherein first projections extending into the cavity of the cover and the projections of the upper portions of the pin holder form cooperating camming and follower surfaces.

28. The electrical connector of claim 27 wherein the cooperating camming and follower surfaces include inclined surfaces for cooperating with opposing, curved surfaces.

29. The electrical connector of claim 28 wherein the inclined surfaces include flat portions forming a surface for stable engagement with the opposing, curved surfaces.

30. The electrical connector of claim 27 wherein second projections extending into the cavity of the cover cooperate with the recesses of the upper portions of the pin holder.

31. The electrical connector of claim 26 wherein first projections extending into the cavity of the cover on the first side of the upper portions of the pin holder are aligned with the projections of the upper portions of the pin holder when the cover is in the second operating

position, and wherein the first projections of the cover are offset from the projections of the upper portions of the pin holder when the cover is in the first operating position.

32. The electrical connector of claim 31 wherein second projections extending into the cavity of the cover on the second side of the upper portions of the pin holder are aligned with the recesses of the upper portions of the pin holder when the cover is in the second operating position, and wherein the second projections of the cover are offset from the recesses of the upper portions of the pin holder when the cover is in the first operating position.

33. The electrical connector of claim 19 wherein the cover includes a handle extending from the cover.

34. The electrical connector of claim 19 wherein the slot extends longitudinally between opposing ends of the body, wherein the electrical connector further includes an opening formed in an end of the body and an opening formed in an end of the cover, and wherein the opening in the body and the opening in cover have a size which substantially corresponds to the card edge, for slidably receiving the circuit card in the slot through the openings.

35. The electrical connector of claim 34 wherein the opening formed in the end of the body is in substantial alignment with the opening formed in the end of the cover.

36. The electrical connector of claim 34 wherein the cover includes a handle extending from the cover, and wherein the handle is adjacent to the openings and spaced from the openings to allow the card edge to pass the handle.

37. A module box incorporating an electrical

connector for receiving a circuit card having a card edge including a plurality of electrical contacts, wherein the electrical connector comprises:

a body having portions connecting the electrical connector to the module box, a slot formed in the body for receiving the card edge, wherein the slot has a size which substantially corresponds to the card edge, and a plurality of pins associated with the slot and extending through the body, wherein the pins are positioned for engagement with the electrical contacts of the circuit card;

a cover coupled with the body and extending longitudinally along the body and the slot, wherein the cover is movable between a first operating position and a second operating position; and

a pin holder receiving the plurality of pins and coupled with the cover and with the body, for transverse movement relative to the body and the slot responsive to movement of the cover between the first operating position and the second operating position.

38. The module box of claim 37 wherein the pin holder is moved toward the slot when the cover is in the first operating position, and wherein the pin holder is moved away from the slot when the cover is in the second operating position.

39. The module box of claim 37 wherein the electrical connector includes a pair of pin holders positioned on opposite sides of the slot, wherein the plurality of pins are attached to the pair of pin holders, and wherein each of the pin holders is coupled with the cover.

40. The module box of claim 37 wherein the cover includes a handle extending from the cover.

41. The module box of claim 37 wherein the slot extends longitudinally between opposing ends of the body, wherein the electrical connector further includes an opening formed in an end of the body and an opening formed in an end of the cover, and wherein the opening in the body and the opening in cover have a size which substantially corresponds to the card edge, for slidably receiving the circuit card in the slot through the openings.

42. The module box of claim 41 wherein the opening formed in the end of the body is in substantial alignment with the opening formed in the end of the cover.

43. The module box of claim 41 wherein the electrical connector is free of structures for interfering with movement of the circuit card within the slot when the cover is in the second operating position.

44. The electrical connector of claim 41 wherein the cover includes a handle extending from the cover, and wherein the handle is adjacent to the openings and spaced from the openings to allow the card edge to pass the handle.

45. The module box of claim 37 which further includes plural electrical connectors, for receiving plural circuit cards.